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An Eſsay

Passed

on

Intermittent fever

By Wilmer Worthington
of Pennsylvania
Member of the Philadelphia medical society.

> But may no fogs, from lake or fenny plain,
> Involve my hill! Armstrong.

November the 6th 1824.

Intermittent fever.

In the following diſsertation, I propose to treat of Intermittent fever: and from its wide prevailing nature, frequent occurrence, and dilatory progreſs towards mortality; we may properly suppose that physicians have not been indolent in exploring its nature, investigating its cause, and endeavouring to find out a remedy by which it may be uniformly cured. The disease itself, cannot be considered of a very dangerous character, yet others of a more serious nature may wear its livery, and excite little or no apprehension, untill they become developed from under the intermittent garb, when they exhibit the most malignant and alarming aspect. Many of our autumnal fevers are ushered in with symptoms so strongly resembling agues, that fatal mistakes are occasionally met with; and hence we see the neceſsity of seriously deliberating what diseases are prevalent, and forbearing to apply our tonics, untill the precise character of the disease is ascertained.

The disease called an Intermittent fever, occurs in distinct fits or paroxysms, with an interval of health, or a complete subsidence

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sidence of the febrile ſymptoms between them. It is also called an Ague, from the ſhivering which commences the fit: and they have recieved different names, according to the length of time intervening between each paroxysm. Thus when the fit recurs every day, or there is an interval of twenty four hours it is called a quotidian; when every other day, or there is an interval of forty eight hours, it is called a tertian; when every fourth day, or there is an interval of seventy two hours, it is called a quartan. Of each of these nosologists have made a great many ſubdivisions, and also have added many others of longer intervals. And although we cannot doubt the existence of such cases, I am inclined to believe their occurrence is extremely rare, and a knowledge of them can be of no real ſervice. I shall however, to make my eſsay more complete, and adhere to the custom of former writers, introduce those which are ſaid most frequently to occur.

That which is called a double tertian, is described as having a paroxysm every day, with the alternate paroxysm alike. Also, the double tertian, with two paroxysms every other day. The triple tertian, with two paroxysms on one day, and one on

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the next. The double quartan, with two paroxysms on the first day, none on the second and third, and two again on the fourth. The double quartan, with a paroxysm on the first day, another on the second, but none on the third. The triple quartan, with three paroxysms every fourth day. The triple quartan, with a paroxysm every day, every fourth day, being similar.

The paroxysms of these different types have been observed to occur at particular hours of the day; as the quotidian in the morning, the tertian at noon, and the quartan in the evening. And to the generality of cases this observation may be correctly applied; yet it is by no means an invariable rule, for we find them coming on at all hours during the day, but much leſs frequently in the night.

As to the most common form of these agues, there is some difference of opinion. Cullen no doubt as he observes, found in his practice the quartan to be the most frequent in its occurrence; but he seems to have had the best experienced practitioners of Europe as well as this country against him. Those of the latter say with confidence, that the tertian is the most common form, and the

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easiest of cure; while the quartan is least so in both these respects, and ensuing only from protracted or neglected tertians. Among those who are of this opinion, are ranked Profeſsors Chapman and Caldwell, than whom, no higher authority could be adduced.

The course which an intermittent fever generally runs, is so well known, that to describe it, is but to repeat what has been already said by writers, who have so minutely enumerated the symptoms, that nothing new can be added. A paroxysm of this disease then, consists in a cold, a hot, and sweating stage, each of which has its distinct symptoms.

The cold stage is preceded by languor and a sense of debility, a sluggishneſs of motion, and some uneasineſs in exerting it; with a disagreeable kind of yawning, and an irresistible propensity to stretch the limbs. At the same time there is some little nausea, the nails turn to a bluish purple, the face becomes pale, the features shrink, the skin is constricted, and communicates the sensation of cold to the hand, particularly when applied to the extremities. these symptoms are soon succeeded by rigors, pains in the head, loins, and extremities; the respiration is small, frequent, and sometimes

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times laborious; the pulse becomes ſmaller, very frequent, and often irregular; the urine is almost limpid, and destitute of sediment; the bowels continue unmoved, and the patient is often comatose to an alarming degree, and even in some cases has a tendency to apoplexy. After these ſymptoms have continued for an hour or two, the rigors become leſs violent, and are alternated with glowings of heat, which ſpread over the whole body, and increase in violence as the ſenſation of cold abates. The face is now flushed, the temples throb, there is pain in the head, back, and some of the great joints; there is anxiety, restleſsneſs, and a tendency to delirium. The pulse becomes more regular, hard, and voluminous, the respiration anxious, and the urine is high coloured, but ſtill without sediment. The skin is relaxed, smooth, and dry, during the continuance of this preternatural redneſs; and the face and other parts of the body not only recover their usual ſize, but even bear marks of distention. After this redneſs, heat, and turgeſcence have continued for some time, a ſlight moisture breaks out upon the forehead, which gradually increases over the whole body; and at last ſweating becomes profuſe, the heat and thirst abates, the body returns to its

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natural temperature, the urine deposits a lateritious sediment, and most of the functions are restored to their ordinary condition.

These are the most important symptoms constituting a regular paroxysm of intermittent fever; but in some authors we find others mentioned, which it is unneceſsary to introduce into an eſsay of this kind. There are also some anomalies to be met with, which it will be right to notice, particularly as they have been handed to us by the highest authorities. Cleghorn and Senac mention cases in which the cold stage was entirely wanting: the same has been observed, by some authors, of the hot stage; and also, in some cases the hot is said to precede the cold: and it is stated by Jackson that cases occurred to him in which the paroxysms went off by urine and stool, without the least degree of moisture on the skin. There is also another irregularity in an attack of this fever which I am to mention; and that is, its being sometimes located in a particular part of the body only, as in one of the limbs, and going through all the different stages of a paroxysm. Profeſsor Chapman says he has known it seated in the eyes, which every other day was attacked with pain, which would gradually

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subside. this was cured by the remedies for fever. He also relates the case of a lady who every other day was attacked by a severe pain in the lower part of the abdomen. As she came from a miasmatic country, and had been subject to intermittent fever, he was led to suppose that the periodical return of pain depended on some disposition of the constitution for this disease. Fowler's solution was directed and she recovered.

As to the cause of intermittent fever there seems to be no kind of doubt. there are few, if any, but what are fully satisfied that its origin is dependent on marsh miasmata, which opinion was first promulgated early in the last century by Lancisi, an Italian writer; and has since been confirmed by all writers on this subject, and is now recieved as one of the best established points in medicine.

Notwithstanding the confidence with which we speak concerning the cause of this disease, and the scrutiny with which the subject has been investigated; we still remain dubious as to the precise circumstances under which these pestiferous exhalations are generated. It was once thought that they arose entirely from aqueous

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and vegetable putrefaction, which by the influence of a powerful sun, was continually going on in marshes, pools, and lakes; and hence, we generally find agues prevailing in such portions of the country. Recently however, it has been maintained by Ferguson, a distinguished writer on this subject; that neither aqueous nor vegetable putrefaction was the cause of marsh poison: but that "the only condition indispensable to its production is paucity of water, where it has recently abounded, and that it is incident to the last or very advanced stage of the drying process." It is according to him, from the saturated, and drying margins of lakes, pools, and marshes, that it emanates, and not from the water they contain, which it is requisite should be absorbed into the earth, and entirely disappear to the eye before it can produce any mischievous effects. the facts he adduces in support of this opinion are many and conclusive; yet we have evidence on the other side sufficiently strong to demand our most serious attention; and thus rendering it hardly safe in the present state of our knowledge to come to any positive conclusion.

It has also been a subject of much inquiry, what the real na-

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nature of these malaria was, or to what we could attribute their poisonous character. Some have said it was owing to azote, hydrogen, carburetted hydrogen, &c.– but from experiments which were instituted for the purpose of ascertaining the cause of their deleterious effects, we are taught that it has been erroneously imputed to these articles. To expose our ignorance upon this subject, and to show how little we yet know concerning their chemical nature, I will quote the result of some experiments which have been recently repeated by Professor Julia of Lyons, with much care and precision. He concludes.

First– "That the nature of these exhalations is wholly unknown. but there is every reason to believe their deleterious effects is owing to a portion of putrefied animal or vegetable matter, dissolved and retained by gas."

Second– "That the air of marshes does not differ from atmospheric in any principle of which chemical analysis can shew the existence."

Third– "That none of the gases disengaged from bodies in a state of putrefaction, exhibit themselves in a sensible quantity."

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Fourth— "That it is an error to attribute the disorders caused by marsh air to the predominance of azote, of carbonated hydrogen, of ammonia", &c.

Fifth— "That those matters, even in a sheer state, occasion only momentary effects, as gases not respirable, and generate no subsequent disorder— a fortiori, when they are diffused in an imperceptible quantity through the atmospheric air, no effect of that nature can be imputed to them."

De Lisle has also made experiments with a view to shed further light upon this subject, the result of which are as follows.

First— "That miasmata poſseſs such gravity that they never arise in the atmosphere, unleſs aided by a lighter body, by which they are carried into it."

Second— "That they have no perceptible smell, and may be separated from odours with which they accidently become aſsociated."

Third— "That it is aqueous vapours which hold them suspended in the atmosphere."

Fourth— "That various obstacles form barriers which they cannot paſs, and against which they are deposited."

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Some of these results have been confirmed by facts long observed; as for instance we have long known that miasmata may be carried by the wind — but as relates to the distance at which they may be transmitted in such a condition as to excite their ordinary effects, much difference of sentiment prevails. We are, however, fully warranted in supposing that they may be wafted to the distance of 8 or 10 miles, as we not unfrequently see diseases known to be produced by them, occur in situations thus remote from the source of exhalation.

It has likewise been known that trees, water, &c. form barriers, by which their paſsage is prevented, and thus it has been customary to plant rows of trees between dwellings, and places known to be favourable to the production of miasmatic poison. Bancroft has observed that a veſsel may lie within a quarter of a mile of the most sickly shores, without endangering in the slightest degree the health of the crew: and in support of this conclusion he has adduced the most authentic testimony. This evidently shows that water forms an impediment to the paſsage of these poisonous vapours, which it does probably thy by

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ly by absorbing them when blown over its surface.

Besides the effect of miasmata in generating intermittent fever, there are other causes which are known to contribute to its production; as fatigue, mental anxiety, meagre diet, excessive evacuations; also cold, especially if conjoined with moisture, as wet clothes, exposure to rain, damp rooms, beds, &c. – but these are to be considered rather as exciting than remote causes. Some have supposed it to be communicated by contagion, but this is by no means consistent with general observation.

After dwelling thus long on the nature and cause of intermittents, I shall proceed to lay down the treatment; and in doing this, I will merely give a summary of what seems at present to be most generally effectual.

The treatment naturally divides itself into two distinct parts; that during the paroxysm, and that during the interval or apyrexia.

In the treatment of a paroxysm we are to imitate nature; differing from her only, by hastening if possible her progress. Thus during the cold stage, it is our duty to endeavour to induce

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the hot; and when the hot shall come on, to excite by proper means the secretion by the skin; or in other words, it is our whole object during the paroxysm to induce perspiration which terminates the fit.

On the first approach then, of a paroxysm, we put the patient immediately into a warm bed, and apply topical applications, as bottles filled with warm water, hot bricks, &c. to his abdomen and extremities; and aſsist their diaphoretic effects by warm diluent drinks, such as the herb teas, and if neceſsary even by wine whey. When the cold stage is very violent, and dangerous consequences seem likely to follow, the best remedy is an emetic, which not unfrequently affords relief during its operation. Being however, always an unpleasant remedy, it should not be prescribed only in particular cases.

The application of tourniquets to the limbs have been very strongly recommended by Mr. Kellie with a view to check the cold fit of agues. From the observations which he made he deduces the following conclusions. First- that at any time during the cold fit of an intermittent, if tourniquets be so applied as to obstruct the circulation in two of the extremities,

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in three minutes thereafter the hot stage will be induced. Second—that if the tourniquets be applied previous to the accession of the paroxysm, the cold stage will be entirely prevented. Third—that when the cold stage of an ague is either thus shortened or prevented, the following hot stage is rendered both milder and shorter. Whether this is of any positive advantage in arresting the cold fit, I will not attempt at present to decide, but Professor Chapman says he has seen it tried in the hospitals at Edinburgh, without any benefit whatever.

Opium is a remedy much employed in the cold fit, and was originally introduced by Dr. Trotter, who gave it in the form of laudanum, gtt. xxx. of which was generally sufficient to arrest the paroxysm. This practice is sanctioned by the most experienced practitioners: sometimes however, it may be necessary to give it in much larger doses than that recommended by Dr. Trotter.

If death takes place in the cold stage, which is rarely the case, it is owing to congestion, or an unusual accumulation of blood in the internal parts.

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The treatment during the hot stage is much more complicated than during the cold. It may be said, however, to consist in the employment of such means as are calculated to remove irritation and induce perspiration. The proper mode of accomplishing the former object, provided bile is the cause of such irritation, is the exhibition of an emetic, which not only clears the stomach of its acrid contents, but also relaxes the surface of the body, lowers its temperature, and occasionally excites diaphoresis. If vomiting comes on spontaneously, nothing more is required than to give the patient freely of warm beverages, as warm teas, water, &c., which only has the effect of facilitating the operation. If vomiting should continue after sufficient evacuations have been procured, it may be requisite to give a little laudanum or opium to calm the irritability of the stomach.

To fulfil the second indication in the hot fit, we depend principally on those medicines which promote perspiration; and for that purpose most practitioners of this country employ the Tartar Emetic in small doses; while the European physicians are, very much in the habit of using the James's powder, an article known to resen

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to resemble very much in its composition and diaphoretic virtues, the pulvis antimonialis of the dispensatory. Beside these, we have other articles which seem to possess very excellent powers in promoting diaphoresis, as the Eupatorium Perfoliatum, and Spiritus Mindereri. The former of these is a native plant growing in meadows and low grounds, well known to the country people by the titles of Thoroughwort, Indian sage, and especially Boneset. With a view of obtaining its diaphoretic effects, it is given in warm infusion. The Spiritus Mindereri is also a medicine well suited to the hot stage of intermittents, acting not only with promptness and certainty, but is retained on the stomach when others are rejected, and on this account is often resorted to with very great advantage.

Opium has been strenuously recommended in the hot fit, by the practitioners of warm climates, and particularly by Dr. Lind, who after ample experience with it declares, that it speedily excites diaphoresis, hastens the solution of the paroxysm, and as the best preparative for the application of the bark. And also, those cases which he treated in this way were never followed by jaundice,

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dropsy, &c. Sometime elapsed before the practitioners of this country could consent to follow the practice of Dr. Lind; but after trying the remedy faithfully, they found it was well suited to those cases where no inflammatory symptoms existed; and prescribed under such circumstances, it is now generally admitted to be extremely useful.

Before concluding my observations on the treatment of the hot stage, I must point out briefly, the plan to be pursued when the disease partakes of a more inflammatory type, which is more apt to be the case in the spring of the year, owing in all probability to the weather being cooler and more changeable, under which circumstances the inflammatory diathesis has a greater tendency to prevail. In cases of this nature when there is pain in the head, a flushed countenance, obstinate delirium or dyspnœa, with a strong, full and hard pulse, the lancet is to be employed, the alimentary canal to be evacuated, by emetics or mercurial purges: and afterwards we may use with great advantage some mild diaphoretic, as the Spiritus Mindereri, or antimonial wine in combination with the sweet spirits of Nitre.

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In the sweating stage we have but little to attend to, but avoid whatever has a tendency to check the discharge, and if much debility be present, to administer some gentle cordial.

If an intermittent aſsume the typhus character, the paroxysm is to be treated by cordials, stimulating diaphoretics, and all the means which tend to support and improve the tone of the system.

I am next to speak of the treatment during the intervals or apyrexia. And among all the remedies which have been tried in the cure of intermittents, none has received half the encomiums, or been so universally commended as the Peruvian bark. The attention of the Europeans was first drawn to it by Cinchon, the spanish countess, being cured of an obstinate intermittent by it in 1640: and a few years afterwards a quantity of it was introduced into Italy and distributed over a great part of Europe at a high price by the Jesuits, from which circumstance it acquired the name of jesuits bark, (pulvis patrum) From this time it came into general use, and was esteemed as a sovereign remedy for this disease; but by some means it fell into discredit, and many years elapsed before it was restored by Talbot; since which, it

it has preserved an unrivalled reputation, amidst the many and diversified opinions which have been entertained concerning it.

As to the proper time at which this remedy ought to be administered, not a little difference of sentiment has prevailed. It was contended by some, that the bark should not be given until the fever had run through several paroxysms, so that morbific influence might be expelled: and among those who supported this absurd doctrine, were Boerhaave and Sydenham. At the present day physicians are too well acquainted with the nature of this disease, not to interfere as soon as poſsible, and endeavour to intercept its progreſs, well knowing that delay only tends to rivet it the more firmly on the system. They apply the bark immediately, waiting only to evacuate the stomach and bowels, and to subdue inflammatory symptoms if present, by venæ section. Indeed many prescribe the bark without even premising evacuations; and such a course is not entirely destitute of succeſs — but the prevalent opinion of practitioners is, that the alimentary canal should first be evacuated by emetics or purgatives, or if neceſsary by both; and for this purpose tartar emetic and calomel are generally used.

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Of late the preference has been given to purgatives, but there are many cases, in which emetics are indispensible. They act not only as mere evacuants, but also operate by making a powerful impression on the stomach, which has the effect of breaking down the train of morbid association, on which depends the regular return of this periodical disease. It is from this mode of action, that active vomiting every morning is so signally successful in the cure of intermittents, and especially those of long standing.

It has been the custom of some practitioners to withhold the use of the bark, until just before the commencement of the anticipated paroxysm. Dr. Cullen was of this opinion, and there appears to be some ground for such belief; for they contended that the bark was then given so as to make the greatest impression on the stomach at the very point of time when the fit was about to recur. And this is further supported by the fact, that opium given just before the return of the paroxysm acts with greater certainty, than when given so long previous to its recurrence, that the impression may be worn off. To this we can reply, that opium being a diffusible stimulant, operates much more speedily than bark, and hence a

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greater length of time is demanded between the administration of the latter, and the time at which its highest degree of action is wanted.

Some writers on the subject have ventured even further than Cullen, and affirmed that the bark should be given during the whole paroxysm. This certainly is erroneous, the bark never fails to aggravate the disease if given while the febrile symptoms are present: and Professor Chapman tells us, that he always found it injurious even when prescribed near the accession of the fit.

Alibert on the other hand asserts, that the proper time for the administration of the bark is at the most remote period possible from the commencement of the next expected paroxysm. His practice therefore was to exhibit it in large and frequent doses in the commencement of the apyrexia, instead of the close; and according to his own account was signally successful.

Bark has been condemned on account of its being supposed to induce visceral obstructions, which not unfrequently accompany intermittent fever. But the ablest practitioners do not hesitate to employ the bark even where such obstructions

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tions exist, provided they are not attended with inflammatory action. this appears to be the point to which our attention ſhould be ſolely directed; and where we do not find the inflammatory diatheſis connected with ſuch caſes, we may with the greatest ſafety and advantage prescribe the bark. But on the contrary, where there is pain in the ſide, an active pulse, and other ſymptoms indicating inflammation, the bark is to be avoided as highly pernicious; while the lancet, if called for by the activity of the pulſe, and violence of the pain, is to be employed. Bliſters and a ſlight salivation, however, are generally ſufficient to remove theſe obstructions.

It has also been ſuppoſed that the bark, remaing in the ſystem, causing "pain in the bones," as it is termed, and other injurious consequences: but this is a vulgar error. Those pains are more probably owing to the circumstance of the bark not having been given at the proper time, or in ſufficient quantity, so to effect a complete cure — just as inſufficient bloodletting, in Pleurisy, will leave the patient ſubject to a pain in the ſide: and it is in this way that valuable remedies often loose their reputation, by reason of a want

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of skill in administering them.

As to the form in which the bark should be exhibited; it seems to be the general opinion of practitioners, that it is most effectual when administered in substance: but from the unpleasant nature of the article, many cannot take it in this way, and it then becomes neceſsary to have recourse to some other form. It may be given in Tincture, Infusion and Decoction: and to make it more agreeable some aromatic may be added, as orange peel, cinnamon, cloves, &c., which not unfrequently prevents it from being rejected, when otherwise it could not be retained. In cases of extreme irritability of the stomach, it has been advised to give it in the form of clyster; and for this purpose it is entangled with some mucilage, with the addition of a little laudanum. Cataplasms of bark, also, the bath made of the infusion of bark, and what is called the bark jacket, have all been recommended, and the latter found useful in the cases of children, yet they are now generally thought to be very feeble remedies.

If the bark should induce costiveneſs, which is sometimes the case, a few grains of rhubarb may be added to each dose; if it should

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purge, a few drops of laudanum will have the effect of preventing it from running off by stool. Milk and liquorice are the best articles to disguise the taste of the bark.

It has been recently ascertained that the bark contains an alkaline base, in which its active virtues reside. That obtained from the yellow bark has the name of quinine, that from the pale, cinchonine, and both of these are found in the red.

(When sulphuric acid is added to the base called quinine it forms a neutral salt, which in the dose of about gr. j. repeated as occasion may require, is very effectual in the cure of intermittents. It is given during the apyrexia in the form of pills or solution in cinnamon water, to which a few drops of sulphuric acid may be added, to render the solution more complete. This is found to be a valuable preparation, having all the virtues of the bark, and the dose being small, it will be retained on the stomach, and not unfrequently effect cures when all other remedies are rejected. But I regret that it has been the misfortune of this article, like many others to be adulterated, which might be expected from the very high price at which it is vended.

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In preparing this article, there is a residue of a thick, brown, viscid substance, that after a short time becomes solid, and assumes a resinous appearance. This article during the present season has been much employed in the city and neighbourhood of Philadelphia in the cure of agues, and appears to be no less efficacious than the sulphate of quinine. One or two grains may be given in the form of pill evey hour or two hours during the interval until gr. XV. or gr. XX. are taken, which is generally sufficient to arrest the fever.

From what has been now said of the Peruvian bark in the cure of this disease, I need only observe, that cases will occur in which it will fail after being tried in every form; but where the system is properly prepared for it, and we are careful to apply it during a complete intermission, we shall frequently be gratified at witnessing a speedy cure.

The Cornus Florida, or Dogwood has been ably investigated by Dr. Walker of Virginia; and on analysis appears to present results similar to those of the Peruvian bark. It is a tonic of very considerable efficacy, and from the reports of those who

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have tried it in this disease, we may safely conclude that its employment in the treatment of agues is attended with frequent succeſs. It is thought to be rather more stimulating than the Peruvian bark, but there is a very great resemblance in their effects on the system, when given in the same way and in similar doses.

The bark of the Prunus Virginiana, or wild cherry tree is esteemed as an useful article, and probably its virtues may be eſsentially active in the cure of intermittents; but I would rather employ it in other diseases, to which I think it better suited. It is exhibited in the form of substance, tincture, decoction and infusion, in doses rather larger than the Peruvian bark.

The different species of oak have been recommended, and may occasionally be serviceable I have no doubt: little however, is written upon this subject, and for want of experience I can say nothing of their supposed virtues.

The Angustura bark, given in smaller doses than the Peruvian, is leſs apt to disorder the stomach and bowels, and has been known to succeed in cases where the latter had failed. It is highly aromatic and astringent, and is well adapted to those cases

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of irritable stomach and bowels, where it would be improper to prescribe the cinchona.

Besides the different kinds of bark which I have mentioned, there are several others which I shall suggest; particularly as some of them are indiginous, and, may be resorted to in cases of emergency. These are the Prinos Verticillatus, Liriodendron Tulipifera, Swietenia Febrifuga, Cinchona Caribæa, Cinchona Jamaicensis, and almost every species of the willow, (Salix.)

As to the real value of many of these, I have nothing to say, but they have all been recommended, and some of them by such authority, that we cannot hesitate to believe they are endowed with anti-intermittent powers. From the experiments which Dr. Rogers made with the Liriodendron Tulipifera, we are taught that it is a powerful stimulant, and useful tonic. Dr. Rush and Dr. Barton thought it displayed very valuable powers, when given for the cure of agues. Professor Chapman says every species of the willow is endowed with tonic virtues; and the experiments which he instituted in the Alms-house convinced him that the common willow was decidedly useful in this disease.

Among

Among the many vegetables which our own county furnishes for the cure of ague, is the Aristolochia Serpentaria, or Virginian snake root. This is said to be next to the peruvian bark in point of efficacy, and is much employed in combination with this article; very often accomplishing cures where the bark alone has failed. It is an agreeable aromatic, and pleasant tonic, seldom offends the stomach, and for this reason may be given in all cases where irritability of this organ accompanies the disease. It is a matter of some doubt whether this article is realy competent by itself to cure intermittent; but when given in combination with other articles, its powers are highly acknowledged. Sydenham gave it conjoined with wine, in order to prevent the recurrence of the paroxysm, and not without success. The following formula is in great repute among the practitioners of this country.

℞. Cort. Peruv. - ℥ss.
Rad. Serpent. - ℥i.

Soda carb. vel Potassæ carb. gr. XL. m. div. in pulv. iv. all of which are to be taken in the course of the day. This, although

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I have never ſeen it used, is I have no doubt a valuable prescription, and most practitioners are prepared to bear testimony of its powers in arresting some of the most intractable cases of our frequent epidemic.

The next article is the Eupatorium Perfoliatum. This I have already ſpoken of in the treatment during the paroxysm — but it is an article capable of fulfilling different indications according to the manner of its exhibition. Thus, in the paroxysm we gave it in warm decoction or infusion, for the purpose of exciting diaphoresis; but in the interval, where it is no leſs efficacious, in order to procure its tonic powers, we employ it in powder, or cold decoction.

The Eupatorium Teucrifolium, a plant growing in most of the middle states, is used with advantage, though it is leſs powerful than the preceding ſpecies.

The Sabbatia Angularis, or centaury is also used as a tonic in this disease, and is thought not inferior to the Chironia Centaurium of Europe. It has like ſome other articles, the advantage over Peruvian bark of being admiſsible in every ſtage of the diſease.

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Most bitters have been found more or leſs useful as a ſubstitute for the bark, and may occasionally be employed in mild caſes with benefit. those mostly prefered are Quaſsia and Columba in decoction or infuſion.

A variety of astringents have been employed, some of which are highly useful. Those most frequently prescribed, are Gum Kino, Alum, Galls, and Sacch: Saturni. the firſt of these which is the kino, and which is thought the most effectual, was firſt made use of by Dr. Fothergill in intermittents, and found to be ſucceſsful after the bark had failed. Profeſsor Chapman considers it a useful article in the following formula.

℞. Gum Kino --- ʒij.
Rad. Gent. ---- ʒſs.
Gum opii. --- gr.ij. m. div. in pulv. xij. one to be taken every two hourſ during the interval.

It is but a ſhort time ſince charcoal has been very ſtrongly recommended by Dr. Calvert, and from the experience of many able practitioners of the city of Philadelphia we are led to conclude its powers are not ſlender in curing intermit-

tents,

tent, and especially those blended with dysentery. It is in this latter case that the charcoal has been signally useful in the Philadelphia Alms-house. the dose is ℨj. repeated every hour or two hours during the intermiſsion.

Sulphur is a remedy of ſome efficacy in intermittents, and is now much employed by the poor. It is given in the dose of about ℨj.

The Sulphate of Copper, or Blue vitriol has been found to arrest ſome obstinate cases of ague. Dr. Monroe gave it according to the following formula. ℞. Sulph. Cupri. gr. iv.
Ext: of Cinchon - gr. xxxij. m. div.
in pilul. xij. one to be taken every three or four hours.

The Pruſsiate of Iron has recently been much ſpoken of by Dr. Zollickoffer of Maryland, as a remedy in this disease: and from the highly respectable character of this gentleman, we are induced to ſuppose his reports are not altogether unfounded. the dose is from 4 to 6 grains given twice or thrice a day, without any regard to the paroxysm.

Arsenic like most active medicines has been em-

ployed

ployed in the cure of intermittents: and in this employment it has its advocates who have extolled it highly, while others have condemned it not only as a useleſs, but even a dangerous remedy. That it is an article productive of mischief when injudiciously employed, no one will pretend to deny; for it may be set down as a maxim, that any medicine which will not do mischief, when improperly exhibited, is very little worth.- But arsenic when properly administered, is as safe, and equal, if not superior to all other remedies in arresting the course of intermittents.-

I have seen it employed more than any other article, and with such ſucceſs, that I have become exceedingly attached to it in the cure of this disease. It is the practice of most physicians who prescribe it, to employ it in the form of Fowler's Solution, a preparation which I consider very inefficient for this purpose, although it is occasionally productive of advantage. the best mode of exhibiting this active and powerful medicine is in the form of pill, in the dose of about $\frac{1}{5}$ or $\frac{1}{6}$ of a grain of the white oxide three times a day. My worthy preceptor

Dr.

Dr. Darlington is in the habit of using the following prescription, which he recieved from the late Dr. Vaughan of Wilmington, and with such succeſs that during the course of twenty years practice he has never met a single case in which it failed. the formula is as follows. ℞. Sal Ammon. ʒi.

Gum. Opii – gr.xvj.

White oxide of arsen. gr.xij. m. ft pilul. Zxiv.

one to be given three times a day to an adult.

If the patient complain of sickneſs at stomach it will be proper to administer an emetic previous to taking the arsenic, otherwise, no preparatry treatment is neceſsary. the pills as above directed are to be continued untill the paroxysms are suspended, which is generally the case on the second or third day; after which it is requisite to administer bark for a few days that the tone of the system may be improved, and a recurrence prevented. By this treatment the paroxysms are more quickly and permanently subdued, than when treated by the bark alone, or any other remedy with which I am acquainted.

It may be proper to remark that by employing the arsenic in in this

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in this way, there is no reason to apprehend any injury from it. Occasionally there is a slight swelling of some part of the body, as the ankles and feet; but even this rarely occurs, and when it does, is no inconvienence to the patient, and quickly subsides. Whether opium, as it is said, has the power of obviating its injurious effects spoken of by authors, I will not attempt to decide positively, but I am inclined to think it highly probable that such is the case. Neither am I aware that the sal ammoniae is in any way serviceable, further, than by using it as an ingredient, the opium is more completely reduced to powder, and an equal distribution of the arsenic through the mass is more effectually obtained, which is essentially important. Indeed the foregoing formula seems to be, as Dr. Chapman has remarked of the Dovers Powder, one of those lucky hits in the combination of medicines, which cannot be improved.

By proportioning the dose accordingly it may be given to patients of any age; and on account of the dose being extremely small, and capable of concealment in any substance; it is remarkably well suited to children, who cannot be prevailed

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upon to take the barks in ſufficient quantity to arrest the disease.

Tela Araneii. the web of the black ſpider, which inhabits cellars, barns, and stables, is recommended for the cure of agues by several authors, and particularly by Dr. R Jackson of the British army. He thinks it more effectual in preventing the recurrence of the febrile paroxysms, than either bark, or arsenic, or any other remedy employed for that purpose. He further says "that if the cob-web was given to a ſubject prepared by bleeding, emetics, or purgatives, it ſeldom failed to effect a cure comparatively permanent; and it was a rare occurrence for the disease thus suspended to relapse into another form. If given in the time of perfect intermiſsion the return of the paroxysm was prevented; if given under the first symptoms of a commencing paroxysm, the ſymptoms were ſuppreſsed, and the course of the paroxysm was so much interrupted, that the disease for its most part lost its characteristic ſymptoms. If given after the paroxysm had advanced in progreſs, the ſymptoms of irritation, viz, tremors, startings, spasms, and delirium — if such existed as forms of febrile action, were usually reduced in violence,

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Dr. Jackson is high authority; and from his representation of the article we are induced to believe that it is not without valuable powers in the treatment of intermittent. It has also been tried by several of the most distinguished practitioners of Philadelphia, and ascertained to poſseſs very active virtues, particularly in the cure of this disease, where they have employed it with such succeſs, as to be perfectly satisfied that the reports of Dr. Jackson are but very little if at all exaggerated. The dose is 4 or 5 grains repeated every fourth or fifth hour—

I come now to speak of those articles which are employed with a view of obviating the recurrence of a paroxysm; and most of these I have already mentioned. I have said opium was recommended in the cold fit, and used with very great advantage: I may here observe that it is no leſs useful if given just before the commencement of it, so as to make the greatest impreſsion on the system at the very time when the paroxysm was expected. Dr. Trotter speaks in high terms of this prac-

practice, which, according to his account never failed to give relief. It produces says he an exhilaration of spirits, which is quickly followed by a relaxation of the surface, a cheerful countenance, and a flushed cheek. The pulse which was weak and sometimes irregular, becomes leſs frequent, full, and equal; an agreeable warmth is diffused over the whole frame, and every unpleasant feeling banished.

Emetics have also been given just before the acceſsion of the fit, and we have sufficient evidence of their signal utility in such cases. They produce a powerful impreſsion on the stomach, which tends to relax the surface, and excite diaphoresis, as mentioned on a former occasion.

Blisters have been said to prevent the recurrence of the paroxysm when applied so long before its acceſsion, as to make the greatest impreſsion at the time of the anticipated attack.

Sulphuric Æther given in the dose of about a drachm, has been found useful when prescribed under the same circumstances as opium. It is a powerful and diffusible stimulant, and in all probability is a very active article in preventing the cold stage of fever. Indeed any strong impreſsion made either on the mind or body,

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body, seems to have the effect of preventing a recurrence of a paroxysm of this disease. those which are known to act sufficiently powerful on the former to subvert the fit, are horror, superstitious fear, &c.

After the usual remedies have failed Mercury may be tried and to prove useful it is neceſsary to induce a slight salivation, which should be kept up for several weeks.

After the employment of all these remedies which I have enumerated, and many others which might be added, it will occasionally be the misfortune of those engaged in the practice of their profeſsion to witneſs cases which remain intractable, and will in spite of all our efforts degenerate into diseases of a more serious character. Intermittents change into continued fevers, and sometimes aſsume a typhus form; but they generally degenerate into obstructions of the abdominal viscera, and their ordinary consequences, as jaundice and dropsy. And it is from these circumstances, that we are taught their injurious nature, although much has been said of their salutary influence. The doctrine of Boerhaave was no leſs dangerous than erroneous; for many acquiescing in this opinion were induced to refrain from applying

plying their remedies in the early stage of the disease, which only had the effect of strengthening the morbid habit, and implanting the disease or its attendents so firmly on the system, that to attempt their removal, was only to expose the inefficacy of our art.

In concluding what I have to say on intermittents, I need only add, that those who wish to be successful in exterminating the morbid association upon which the existence of this disease depends, must attack it in the very onset, and with such remedies as are calculated to make a powerful impression on the system, and in almost every case we shall be gratified at seeing our patient convalescent, and our own conduct applauded.

Finis.